



1. Project Data

Project ID

P084404

Project Name

MZ- Transmission Upgrade

Country

Mozambique

Practice Area(Lead)

Energy & Extractives

L/C/TF Number(s)

IDA-43530,IDA-43540

Closing Date (Original)

30-Jun-2013

Total Project Cost (USD)

13,800,000.00

Bank Approval Date

17-Jul-2007

Closing Date (Actual)

31-Aug-2016

IBRD/IDA (USD)
Grants (USD)

Original Commitment

45,000,000.00

0.00

Revised Commitment

13,898,425.00

0.00

Actual

13,129,877.29

0.00

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2. Project Objectives and Components

a. Objectives

The project was the second of three operations supporting the Southern African Power Market Program (SAPMP) Adaptable Program Lending (APL) series. The overall objective of the program series was to increase the availability and reliability of low cost, environmentally friendly electric energy in the Southern Africa region, thereby increasing competitiveness of industry and fostering economic growth.

The Project Development Objectives (PDO) stated in the Financing Agreement (p.6) were "to support the Recipients efforts to implement Mozambique-Malawi Interconnector as part of the Southern African Power Pool, and to: (i) increase access to diversified, reliable and affordable supplies of energy; and (ii) expand opportunities to benefit from Southern African regional power trading".



The project Appraisal Document (PAD, para 33) had a slightly different wording for the Project Development Objectives. They were stated as follows: "The Mozambique-Malawi Transmission Interconnection Project (APL-2) development objective is to implement the Mozambique-Malawi Interconnection (i) to increase access to diversified, reliable and affordable supplies of energy, and (ii) to expand Malawi and Mozambique's opportunities to benefit from bilateral and regional power trading on the Southern African Power Pool". This was not a substantive difference, since regional power trading encompassed bilateral trade.

In April 2013, the project was restructured to adjust for the failure of Malawi to sign its Credit Financing Agreement. Its focus accordingly shifted to investments purely to support an upgrading of Mozambique's transmission infrastructure in Tete province. The project was removed from the SAPMP APL series and changed to a stand-alone Specific Investment Loan (SIL) operation. The PDO was changed at this time, as per an Amended and Restated Financing Agreement (p.5), to the following: "To reduce the frequency of electricity outages in Tete province".

b. Were the project objectives/key associated outcome targets revised during implementation?

Yes

Did the Board approve the revised objectives/key associated outcome targets?

Yes

Date of Board Approval

17-May-2013

c. Will a split evaluation be undertaken?

Yes

d. Components

The project had the following components:

1. (Estimated cost: US\$47.1 million for Malawi; US\$43.5 million for Mozambique): Construction of the transmission interconnection from the Malawi electricity grid to the Mozambique grid, so as to connect Malawi to the South African Power Pool network. This would involve construction of some 75 km of 220 kV transmission line on the Malawi side, installation of a 220 kV substation, and development/implementation of a Resettlement Action Plan. On the Mozambique side, this included construction of 135 km of 220 kV transmission line, extension of the Matambo substation, development/implementation of a Resettlement Action Plan and studies, works, engineering and project management support required to complete the interconnection.
2. (Estimated cost: US\$2.9 million for Malawi; US\$1.7 million for Mozambique): Technical assistance, capacity building, training and equipment necessary for ESCOM and EDM to strengthen and expand power trading activities. Activities for Malawi included updating the power system development, system



operation plan and identification of ESCOM's critical power system needs; supporting ESCOM in improvement and management of its financial performance; and provision of technical advisory service and training to ESCOM staff. For Mozambique, activities included a feasibility study or extending the interconnector to the country's northern region, and technical assistance and training in the areas of environmental and social management, loss reduction, etc.

3. (Estimated cost: US\$ 9.9 million for Malawi, US\$4.6 million for Mozambique): Investments to replace worn-out, inadequate or obsolete equipment to remove critical bottlenecks in the networks, which could impede the flow of traded electricity. For Malawi, these included replacement of digital excitation equipment. Circuit breakers and other switchgear, control and protection equipment, and so on. For Mozambique, these included provision of a new 220/66/33 kV power transformer at the existing Matambo substation in the Tete region; connecting the new transformer to the 66 kV and 33 kV systems, and associated civil works, control and protection work at the substation.

Revised Components:

Following the restructuring in 2013, the components were revised and focused on reducing the frequency of outages in the Mozambique network in Tete province (the Malawi components being dropped). The only infrastructure investment was the installation of the transformer at Matambo substation. The revised components were the following:

1. Consulting Engineering Services (Estimated cost - US\$0.8 million, Actual cost – US\$0.12 million):

This component included consulting services and provision of technical assistance to assist EdM with engineering, technical, procurement, environmental and social aspects associated with the Matambo substation works.

2. Capacity Building and Technical Support to EdM (Estimated cost - US\$1.6 million, Actual cost – US\$1.58 million): This component continued to finance system planning and operational studies for EdM, via provision of technical advisory services and training. As part of this, Component B continued to support the Environment & Social Impact Assessment (ESIA) for the proposed Mozambique Regional Transmission Development Project.

3. Improved Transmission Infrastructure (Estimated cost – US\$10 million, Actual cost: US\$8.2 million): This component ensured that the Matambo substation had sufficient power transformer capacity for the rapidly growing electricity loads in Tete province. The work included the rehabilitation and reinforcement of the existing 220 kV Matambo substation, including provision of a new 220/66/33 kV power transformer, its connection to the 66 kV and 33 kV busbars at the substation, and associated civil, control and protection works.

4. (New) Tete Substation Upgrades and Mobile Substation (Estimated cost – US\$3.9 million, Actual cost – US\$3.5 million): This component, which was added at Restructuring in 2014, included the provision of a new 66/33 kV, 50 MVA power transformer and related switchgear, and provision of a 220/33 kV, 25 MVA mobile substation, to be used in the event of faults in the overloaded network.



e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

d. Comments on Project Cost, Financing, Borrower Contribution, and Dates:

Project Cost: The project went through one Level 1 restructuring, which cancelled all activities related to the regional interconnector, and three Level 2 restructurings, which added additional components and/or reallocated funds among disbursement categories. The final project cost after the Level 1 restructuring, which cancelled the US\$31.2 million allocation for the cross-border transmission line, was US\$13.8 million, further reduced during the Level 2 restructuring in November 2014 to US\$13.45 million. This was significantly lower than the originally envisaged cost of US\$109.7 million for the project (US\$59.9 million for Malawi and US\$49.8 million for Mozambique), reflecting a major reduction in its scope and coverage. The actual cost of the project at closure was of the order of US\$13.4 million.

Financing: The main source of funding for the project was IDA, which provided US\$48 million equivalent for Malawi and US\$45 million for Mozambique. There were no other co-financiers.

Borrower Contribution: Borrower contribution was originally envisaged to be some US\$11.9 million from the Government of Malawi and US\$4.8 million from the Government of Mozambique. After the Level 1 restructuring, the Malawi portion of the project was dropped, hence no government contribution was envisaged. Though the Mozambique portion was retained, in light of its reduced size and scope, the government's contribution there was zero.

Dates: The project was originally envisaged to close on June 30, 2013. After the first (Level 1) restructuring, the closing date was extended to December 31, 2014. The second restructuring resulted in an 18-month extension of closing date to June 30, 2016, followed by a further two-month extension to August 31, 2016, to allow sufficient time for shipment from China of the transformer for Tete substation, which had proved to be too heavy for the assigned vessel.

3. Relevance of Objectives & Design

a. Relevance of Objectives

Original Project:

The project's original objective of assisting Malawi and Mozambique in implementing the regional electricity interconnector, linking both countries to the Southern African Power Pool and increasing their access to reliable, diversified and affordable supplies of energy, was broadly aligned to the needs of the electricity sector in both countries. In Malawi's case the objective of improving reliability and access to electricity, specifically by connecting to the southern region electricity power pool, was mentioned in the MGDS (Malawi Growth & Development Strategy, 2006-11 Section 4.3), and was broadly consistent with the objectives of the Country Assistance Strategy (CAS), 2007-10, of providing the foundations for long-term economic growth through improved infrastructure and the investment climate. In the case of Mozambique, the objective of improving access to electrical energy and promoting new energy sources was included among the objectives of its Poverty Reduction Strategy Paper, 2007, and the project was included under Pillar 3 of the Bank



Groups Country Partnership Strategy (CPS, FY08-11).

Revised Project:

The project's revised development objectives, after Malawi's withdrawal in 2013, were more narrowly defined and fairly closely aligned to Mozambique's strategic priorities. As reflected in the CPS, FY12-15, household access to grid-based electrification in rural areas was extremely low at the time (around 2 percent) and investments to improve access and reliability of supply, anchored by the long-term national electrification strategy, could be considered to be a priority. The development objectives remain relevant to the current needs of Mozambique's electricity sector, since demand for electricity has been growing in Tete, a mineral-rich province, putting strain on the electricity supply infrastructure in the region and increasing vulnerability to power outages. As Tete is now considered a growth pole, driven by energy-intensive mining operations, upgrade of the existing infrastructure is of high priority to the utility, *Electricidade de Mocambique* (EdM), whose Master Plan (2011, updated 2014) pays special attention to increasing rural electrification and provision of infrastructure to industries, so as to promote economic growth.

Rating

Substantial

Revised Rating

Substantial

b. Relevance of Design

Original Project:

The project's original design was closely aligned to its development objectives. The design and causal chain were relatively straightforward, focusing on implementation of the Mozambique-Malawi interconnector as part of the South African Power Pool, thereby facilitating improved access to diversified supplies of power and increased opportunities to benefit from regional power trading. Had the project proceeded according to its original design, the investments supported by it would have established the necessary transmission line interconnector and associated substation links, and provided technical assistance to the Electricity Supply Corporation of Malawi (ESCOM) and *Electricidade de Mocambique* (EdM) to support the sustainability of project outcomes.

Revised Project:

After the project was restructured, its design was considerably simplified. The planned regional investments were cancelled, and only the Matambo substation expansion in Mozambique was retained (the transformer upgrade being already part of the original project). As it stood, the design of the restructured project was broadly consistent with its revised developmental objectives of reducing the frequency of outages in Tete province. The causal chain was fairly straightforward: the Matambo substation being the only 220/66/33 kV substation serving the province, it was a critical link (along with the 66/33 kV downstream Tete substation) in the supply chain for reliable electricity service to the rapidly-growing region. The upgrade and extension works supported by the project were relatively simple in design and based on standard technology. Since the existing transformer was fairly heavily loaded, and demand was increasing rapidly, increased transformer capacity was a relatively simple means of maintaining and improving reliability of electricity supply to the province. That said, this being a relatively small component of the original project, the relative benefits of an upgrade at the Tete substation, serving Tete city, vis--vis Matambo were not specifically evaluated during appraisal. The EdM Master Plan's demand forecast (2011) in fact suggested that the Tete transformer was already overloaded, raising the possibility that an upgrade there might have been of relatively higher priority.



In the absence of analysis, it is difficult to determine whether the selected investments were the most relevant choice for bringing about a reduction in outages. Another shortcoming in the design of the restructured project was that the main results indicator (which made use of the System Average Interruption Frequency Index) was not appropriately defined for measuring system reliability. Both issues were corrected during the subsequent restructuring in 2014, when project savings allowed the purchase of the additional transformer for Tete substation, in addition to a mobile substation, and for the PDO indicators to be updated.

Rating
Substantial

Revised Rating
Substantial

4. Achievement of Objectives (Efficacy)

Objective 1

Objective

“To support the Recipient’s efforts to implement Mozambique-Malawi Interconnector as part of the Southern African Power Pool, and to: (i) increase access to diversified, reliable and affordable supplies of energy; and (ii) expand opportunities to benefit from Southern African regional power trading.”

Rationale

The original PDO of achieving increased access for Malawi and Mozambique to diversified, reliable and affordable supplies of energy, and of increased opportunities to benefit from regional power trading, via interconnection to the Southern Africa Power Pool, was not achieved, as Malawi withdrew from the project without signing the credit agreement. All activities to be financed related to regional interconnection under the project were dropped, with the project being restructured, to focus on transformer upgrade in Tete province in Mozambique. As such, the achievement of the original PDO was Negligible.

Rating
Negligible

Objective 1 Revision 1

Revised Objective

“To reduce the frequency of electricity outages in Tete province”

Revised Rationale

Outputs:

All planned project investments were successfully completed by project close, including the following key items:

- Installation of the 130 MVA (220/66/33kV) transformer at Matambo
- Upgrade of the System Control and Data Acquisition (SCADA) system was and 220kV busbar at Matambo



substation

- Procurement of the 50 MVA (66/33 kV) transformer for Tete substation
- Procurement and delivery of the 25 MVA (220/33kV) mobile substation

The new transformer was commissioned in July 2016, and the mobile substation in December 2016. The new transformer at Tete was on site and expected to be commissioned by August 2017.

Outcomes:

After restructuring, the results indicator to measure a reduction in outages was the "Average interruption frequency per year in the project area". Although the target for the index was significantly exceeded, average interruption frequency dropping from a 2013 baseline of 453 to 151 at completion (against a target of 411), it appears that this was probably on account of factors not attributable to the project, since average outages had already decreased substantially some months prior to the commissioning of the Matambo transformer. Upgrades to the province's downstream distribution network may also contributed to the decline, as might have a temporary reduction in demand from large mining customers who had cut back production in response to falling world commodity prices.

The reduction in Tete province outages was also demonstrated by the System Average Interruption frequency Index (SAIFI), a standard industry reliability indicator that EdM collected for the Central Region (which includes Tete province). The indicator for the region increased between 2013 and 2015, before dropping significantly by 2016 - again a not fully conclusive result.

Despite the shortcomings in the indicators, it is clear that the project did lead to some substantial outcomes. The additional transformers at Matambo and Tete, along with the mobile substation, added to the transformation capacity at critical supply bottlenecks in Tete province. By project closing, the existing transformers at Tete and Matambo were showing signs of overloading, putting stress on the system. The increased redundancy and capacity at both substations greatly reduced this stress, the direct outcome of which would be reduced outages. Reflecting this, the intermediate results indicator measuring the level of charge of the Matambo transformer shows that the target was exceeded substantially. The level of charge fell from 98.1 percent of maximum capacity in march 2016 to 45 percent in August 2016, immediately after commissioning the new transformer providing clear evidence of the extent to which the new transformer had eased the stress on the existing transformer. It should be noted that the new transformer provides the ability to accommodate the estimated load growth until 2026.

Overall, all key results indicator targets were largely met or exceeded, and system reliability was significantly improved by addition of the new equipment. As such, despite the incomplete data on outage reduction in the results framework, it is likely that the project will lead to a reduction of substation-related outages. For this reason, achievement of PDO is rated **Substantial**.

Revised Rating

Substantial

5. Efficiency

Economic and Financial Efficiency

Although an economic analysis was carried out at appraisal for the original project, involving the costs and



benefits of transmission interconnection between Malawi and Mozambique, this was not re-evaluated at restructuring, when Malawi dropped out and the scope of the project changed. As such it is difficult to evaluate potential improvements in project efficiency relative to the design stage. This is compounded by the relatively short time frame available for evaluation from commencement of new equipment operation. That said, economic analysis at project close indicated that project investments were economically viable with positive returns estimated over the lifetime of the equipment installed. Benefits accruing from the reduction of costly outages in Tete region gave rise to an estimated Economic Rate of Return (ERR) of 36 percent and a Net present Value (NPV) of US\$147 million, though at a somewhat low hurdle rate of 6 percent. Benefits were however unevenly divided. The ERR for Component C (Matambo substation) was estimated at only 7 percent while that for Component D (Tete transformer and mobile substation) was estimated at 97 percent. From a financial viability point of view, the project was estimated to be financially unviable (negative NPV) at the 2016 level of tariffs.

Operational and Managerial Efficiency

From a cost perspective, some efficiencies can directly be identified. The restructured project was intended to install an 80 MVA transformer at Matambo substation; however, cost efficiencies resulting from the competitive procurement process resulted in sufficient savings to permit the upsizing of the Matambo transformer to 130 MVA, plus the purchase of another 50 MVA transformer at Tete and a 25 MVA mobile substation. These investments added considerably to the projects benefits without raising the total cost above the planned amount, which represented an efficient use of the projects financial resources.

On the negative side, the project suffered significant delays during its lifetime, requiring restructurings and extensions that extended the closing date by 38 months. At the end of the day, the projects relatively simple activities took nine years after approval in 2007 to be completed. All of this could be considered to have negatively impacted overall efficiency in achieving the projects objectives. Based on this, project efficiency is rated as Modest.

Efficiency Rating

Modest

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 <input type="checkbox"/> Not Applicable
ICR Estimate	✓	7.00	0 <input checked="" type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome



The project's original developmental objectives were rated as substantial at appraisal, as were its revised objectives, at restructuring. At the same time its design was found to be substantially relevant both for original project and revised project. With the withdrawal of Malawi from the project, there was negligible achievement of the original objective. There was however substantial achievement of the revised projects objectives. Project efficiency is rated only as modest, on account of the significant delays experienced. At the end of the day, the project which had been designed initially as a regional interconnector had to be restructured into a much more modest, though locally significant, substation upgrade.

Since the project's objectives were formally revised, in accordance with the harmonized evaluation criteria, a split evaluation is applicable to relevance and efficiency ratings. Ratings for the pre- and post-restructuring phases (on a scale of 1 to 6, where 1 is Highly Unsatisfactory and 6 is Highly Satisfactory) are weighted by the disbursement amounts in those phases, giving rise to an overall rating of Moderately Satisfactory. Results are as follows:

Pre-restructuring: Unsatisfactory; Rating = 2. Disbursement amount (XDR m.) = 1.88; Weightage = 20.7%
Post-restructuring: Satisfactory; Rating = 5. Disbursement amount (XDR m.) = 7.22; Weightage = 79.3%
Overall: Moderately Satisfactory; Rating (wt. av.) = 4.38

a. Outcome Rating
Moderately Satisfactory

7. Rationale for Risk to Development Outcome Rating

Principal risks to the sustainability of the reduction in outages in the region would lie in (a) delays or any shortcomings in installation of the transformer at Tete substation, and (b) the inability of EdM on account of a weak financial position to undertake the investments needed for maintenance and upgrade of project investments and downstream infrastructure.

As regards (a), the project supported the purchase of the transformer at Tete substation, but on account of inadequate resources not its installation, which were to be funded by EdM. EdM's weak financial position does constitute an area of risk, as it could constrain its ability to make timely investments in the necessary sub-transmission and distribution system maintenance and refurbishments in Tete province.

Another area of risk is on the demand side. Though outages may be reduced, EdM's fast expanding customer base in Tete region, plus growing demand from returning mining and other industries, could very easily push overall load beyond the limits of the additional capacity provided under the project. In that case, system reliability could be compromised and outages increase again. It should be noted that while projected demand growth in the province for the next 5 to 10 years is well within the excess capacity of the new transformers at Matambo, a recovery in commodity prices, more rapid economic growth or other factors could increase pressure on the electricity infrastructure.

Based on these considerations, the risk to development outcomes is assessed as Modest.

a. Risk to Development Outcome Rating



Modest

8. Assessment of Bank Performance

a. Quality-at-Entry

The design of the project, as originally conceived, was well aligned with country goals and priorities. The supply of electricity from Mozambique to Malawi via a cross-border interconnector was seen as a least-cost alternative for Malawi, to meet its growing demand for power. Preparatory work took account of alternative modalities, such as expanding Malawi's domestic hydropower generation capacity. The project was formulated as part of a horizontal Adaptable Program Lending (APL) series of the Southern African Power Market Program (SAPMP). The design of the project included a detailed implementation plan to manage the intricacies of joint implementation between the two countries, and measures to mitigate the risks of implementation delays, coordination risks, infrastructure bottlenecks, etc. The Project Appraisal Document did not however discuss the risk associated with the failure of the two countries to reach an agreement on the key parameters of power trading. Also, not considered was the risk of political opposition to the interconnector, stemming from greater prioritization of development of domestic energy resources over perceived dependence on foreign energy sources. Both were among the reasons why the Government of Malawi ultimately did not sign the agreement. While the political turmoil in Malawi that took place soon after project appraisal (when the Malawian Parliament was suspended for over 18 months) could not have been anticipated, some of the signs were evident, in the form of reservations expressed over the wheeling agreement (determining the charges to be paid by ESCOM to EDM for use of the Mozambique portion of the transmission line) and the take-or-pay clause of the Power Supply Agreement (PSA). To this extent, the Bank seriously underestimated the risks facing the project, as it was then designed.

After the exit of Malawi from the project, the operation was restructured, with no re-appraisal, on the argument that it was based on activities that had been appraised earlier as part of the original project. However, a cost-benefit analysis of the Matambo substation upgrade, which accounted for a relatively small share of the costs of the overall project, had not been included in the original economic analysis. No further economic analysis was conducted in the restructuring project paper, as a result of which the economic and financial viability of the specific operation was not established up-front.

Quality-at-Entry Rating

Moderately Unsatisfactory

b. Quality of supervision

The project was supervised on a regular basis throughout its duration. A total of 16 Implementation Support & Results Reports (ISRs) were submitted over the project's nine-year life. The task team leader was based in the Maputo country office for much of this duration, facilitating communication with the client. Prior to the Malawi's withdrawal, the team engaged proactively with ESCOM and EdM to try and address the various issues that came up. The Bank's senior management, along with the task team, also held high-level discussions with senior government officials to present the merits of the interconnection operation in the context of Malawi's energy needs. While waiting for Malawi to sign the agreement, the task team made efforts to advance



activities on Mozambique's side, to the extent possible. The team was also proactive in restructuring the project multiple times, to adapt to changing circumstances, and to try and maximize the potential impact of the resources available. Thus, the project was able to support more investments than had originally been envisaged during the first restructuring. All activities were brought to a successful conclusion by project close. The decision-making process on what course of action to adopt, following Malawi's withdrawal, was unduly protracted, with different options being discussed with senior management, and nearly 2.5 years elapsing before the final decision was made in January 2013 to proceed with the restructuring. At the same time, the delay in restarting the procurement process, compounded by the lack of allocation of Bank budget during FY2012, contributed to the delayed start of the substation works which subsequently required multiple project extensions.

Quality of Supervision Rating

Moderately Satisfactory

Overall Bank Performance Rating

Moderately Satisfactory

9. Assessment of Borrower Performance

a. Government Performance

Since the Government of Malawi never signed the Credit Agreement, they were never officially a borrower for the project. For this reason, only the portfolio of Mozambique is evaluated.

The Government of Mozambique provided strong support to the project throughout. After Mozambique signed its Financing Agreement in September 2007 and achieved effectiveness in February 2008, the Government requested a waiver of the effectiveness cross-conditionality, so that the effectiveness of its own credit would not be held up by the delays on Malawi's side. All other effectiveness conditions were met in a timely manner. Under the restructured project, the Government's role was more limited, but it requested and supported the project restructurings. Overall, though the original project never took off due to a breakdown of commercial negotiations, the Government of Mozambique actively supported the restructured project and timely utilization of project savings. On balance, its performance is rated Moderately Satisfactory.

Government Performance Rating

Moderately Satisfactory

b. Implementing Agency Performance

The sole implementing agency for the restructured project was *Electricidade de Mocambique* (EdM), the electricity utility. EdM implemented all planned activities effectively by project closure, including the additional investments under the project savings. Project fiduciary requirements were generally met, including interim financial reports and audited reports, which were mostly submitted on a timely basis. There were however some shortcomings in procurement and implementation that created delays in completion. This includes the procurement for the Matambo contract, which suffered several delays (on the



part of both Bank and EdM), so that works only commenced in January 2014, making an extension of closure date a necessity. Issues were also raised regarding contract management and supervision, including documented delays in clearing invoices. This was compounded by the absence of a centralized or dedicated PIU, within EdM, for the project, which meant that the designated project manager was also responsible for other projects/tasks, which diluted the focus on the Transmission Upgrade project, as well as contributing to the less-than-satisfactory Project Monitoring & Evaluation performance of the implementing agency (Section 10). On balance, implementing agency performance is rated Moderately Unsatisfactory.

Implementing Agency Performance Rating

Moderately Unsatisfactory

Overall Borrower Performance Rating

Moderately Satisfactory

10. M&E Design, Implementation, & Utilization

a. M&E Design

Key Performance indicators for the project at appraisal were reasonably direct, attributable and mostly adequate to measure progress towards achievement of PDO. One shortcoming however was that while the PDO specifically mentioned access to diversified, reliable and affordable electricity, there was no specific outcome indicator measuring affordability.

Post-restructuring, the results framework was modified to reflect the change in PDO and reduction in project scope. The System Average interruption Frequency Index (SAFI), used as the key determinant of system reliability, was modified during the second restructuring and replaced by a core indicator measuring average Interruption frequency per year in the project area (Tete), and a second core PDO indicator relating to direct project beneficiaries was added. These modifications improved the quality of the results framework, especially with the inclusion of an indicator measuring the level of charge of the transformer, which provided an indication of the level of stress.

b. M&E Implementation

Since the original, interconnection project did not take place, the M&E system described in the PAD was never implemented.

For the restructured project, formal quarterly or semi-annual monitoring reports were not submitted to the Bank, though updates to the results matrix were collected during missions, albeit on a somewhat irregular basis. This did not significantly impact the implementation of the project, however.

c. M&E Utilization

Aside from reporting in the Banks Implementation Status and Results reports (ISRs), there appears to have



been no utilization of the periodically collected data under the project. No specific M&E arrangements were envisaged for long-term monitoring of project outcomes, as the required data were a sub-set of the overall operational data collected by EdM.

M&E Quality Rating

Modest

11. Other Issues

a. Safeguards

The original project was classified as environmental category B (Partial Assessment) Environmental Assessment (OP/BP 4.01), and triggered two other safeguard policies: Involuntary Resettlement (OP/BP 4.12) and Natural Habitats (OP/BP 4.04) by virtue of planned investments in the regional transmission interconnection. The cross-border transmission line corridor was scheduled to pass mostly through agricultural land and brush-land of low bio-diversity value and the project was not considered likely to cause any significant environmental or social resettlement impacts in either Malawi or Mozambique. The restructured project, being of greatly reduced scope, and absent the transmission line, presented a greatly reduced risk of negative environmental and social impact, since all physical implementation occurred within the existing substation area. The restructured project was nevertheless maintained as environmental category B.

A Resettlement Policy Framework (RPF) and Environmental and Social Impact Assessment (ESIA) were carried out as part of the preparation of the original project. Both were disclosed in Mozambique and at the Bank's Infoshop on January 9, 2007.

The project was compliant with all applicable safeguards policies, and the overall safeguards rating remained satisfactory throughout the period of implementation.

b. Fiduciary Compliance

Financial management (FM) arrangements were implemented and maintained adequately by EdM through the life of the project, and were compliant with the Banks policies and procedures. Suitably qualified financial management specialists, with appropriate skills, were assigned to manage the projects accounting, financial reporting and disbursement issues. The interim financial reports and annual audit reports were submitted on a regular basis. The audit reports were unqualified and no major financial management issues were reported. Overall financial management performance was rated Moderately Satisfactory through most of the implementation period, except for the period between withdrawal of the Malawi credit (July 2010) and the first restructuring (April 2013), when the FM rating (and most other ratings) was downgraded to Unsatisfactory. Before Malawi's withdrawal in 2010, limitations on EdM's (and ESCOM's) procurement capacity resulted in delays. Some of the delays were because of the cross-conditionality of disbursements for the interconnector project. After cancellation of Malawi's credit, EdM had to remove all interconnector-related parts from the Matambo package, which took some time, requiring the entire procurement process to be cancelled and rebid



the entire process taking over two years. During this period, all key project monitoring indicators were rated unsatisfactory. Things improved somewhat after restructuring in 2013. However, contract procurement performance suffered some more delays particularly for the Matambo substation transformer and the corresponding supervision consultancy, in part on account of the needlessly long time needed for contract approval by the Commission for Foreign Economic Relations (CREE). Notwithstanding this, procurement performance was mostly rated satisfactory through the implementation period, until closure.

c. Unintended impacts (Positive or Negative)

d. Other

12. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Moderately Satisfactory	Moderately Satisfactory	---
Risk to Development Outcome	Modest	Modest	---
Bank Performance	Moderately Unsatisfactory	Moderately Satisfactory	Quality of Bank supervision was considered to be Moderately Satisfactory, as all activities were brought to conclusion by project close.
Borrower Performance	Moderately Satisfactory	Moderately Satisfactory	---
Quality of ICR		High	---

Note

When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006.

The "Reason for Disagreement/Comments" column could cross-reference other sections of the ICR Review, as appropriate.

13. Lessons

IEG draws the following key lesson from the ICR:

A thorough assessment of the political economy context is essential when undertaking regional



electricity trade projects. The interconnector project was assessed fairly thoroughly on technical grounds, but more attention should have been paid to the concerns of stakeholders in the highest levels of Government, many of whom were concerned about the risks of undue dependence on foreign sources of energy. Assessing the political environment and ensuring the political buy-in of all key stakeholders is essential to the success of all regional projects involving cross-border coordination and commitments.

14. Assessment Recommended?

No

15. Comments on Quality of ICR

The ICR is clearly-written, candid, and consistent with the guidelines. It provides a good summary of events, as they affected the project, and enables the drawing of appropriate conclusions. The analysis is evidence-based, thorough, and provides considerable relevant detail to justify its conclusions. That said, some additional information could however have been provided on safeguards compliance, and of the implications of the core indicators on gender and project beneficiaries.

a. Quality of ICR Rating

High